

August 17, 2020

Walker Custom Homes, LLC
Attn: Jason Walker

Re: 1805 River Run Drive

Vista Structural Engineering, LLC, was asked to address the following item called out during rough-in inspection by the city. Below is the inspection report comment and our response:

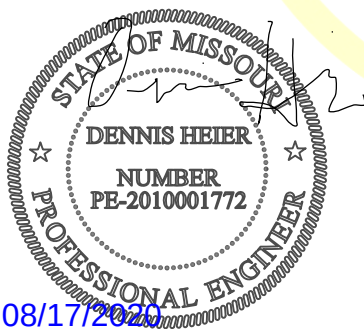
- **Address wall framing not full plate height per plans at great room and entry; provide engineered letter and correction.** *At the wall in the great room, there are ceiling joists that prevent the hinge point along the majority of the wall. These ceiling joists should have two 8d toenails through the bottom of the joists and into the top of the plate that they bear on. There are locations where the ceiling joists bear below this plate (see picture on following page). These studs should each have a strap installed, fastened above and below the plate. At the entry, no remediation is needed, as there is a continuous 2x6 plate under the header that extends the full width of the wall, which acts as a beam that resists design out-of-plane (wind) loading, per the attached calculation.*

Our firm appreciates the opportunity to serve you. If you have any questions or if you need anything further, please feel free to contact us.

Sincerely,

Vista Structural Engineering, LLC

Dennis Heier, P.E.



VISTA STRUCTURAL ENGINEERING, LLC

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PORTLAND, OREGON 97229

- 1 -

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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Lic. # : KW-06010523

File: WWS022 - field letter.ec6
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Vista Structural Engineering, LLC

DESCRIPTION: plate at entry wall, under header

CODE REFERENCES

Calculations per NDS 2012, IBC 2012, CBC 2013, ASCE 7-10

Load Combination Set : IBC 2018

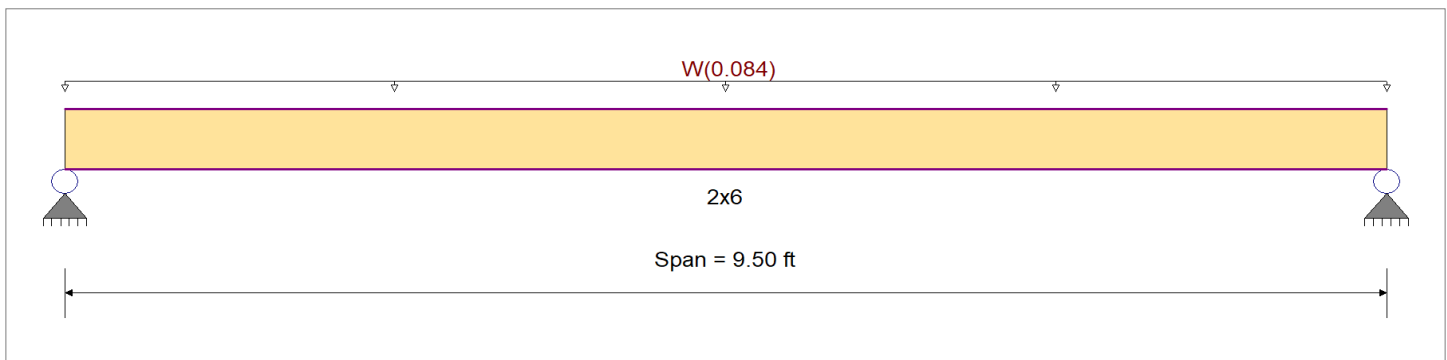
Material Properties

Analysis Method : Allowable Stress Design
Load Combination IBC 2018

Wood Species : DouglasFir-Larch
Wood Grade : No.2

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb + 900.0 psi
Fb - 900.0 psi
Fc - Prll 1,350.0 psi
Fc - Perp 625.0 psi
Fv 180.0 psi
Ft 575.0 psi
E : Modulus of Elasticity
Ebend- xx 1,600.0 ksi
Eminbend - xx 580.0 ksi
Density 31.210 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Uniform Load : W = 0.0140 ksf, Tributary Width = 6.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.482	1	Maximum Shear Stress Ratio	=	0.137	1
Section used for this span	=	2x6		Section used for this span	=	2x6	
	=	902.20 psi			=	39.40 psi	
	=	1,872.00 psi			=	288.00 psi	
Load Combination	=	+0.60W		Load Combination	=	+0.60W	
Location of maximum on span	=	4.750 ft		Location of maximum on span	=	9.049 ft	
Span # where maximum occurs	=	Span # 1		Span # where maximum occurs	=	Span # 1	
Maximum Deflection							
Max Downward Transient Deflection		0.465 in	Ratio =	244	>=	240	
Max Upward Transient Deflection		0.000 in	Ratio =	0	<	240	
Max Downward Total Deflection		0.279 in	Ratio =	408	>=	180	
Max Upward Total Deflection		0.000 in	Ratio =	0	<	180	

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios		C _d	C _{FV}	C _i	C _r	C _m	C _t	C _L	Moment Values			Shear Values		
			M	V								M	fb	F'b	V	fv	Fv
	Length = 9.50 ft	1			0.90	1.300	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
+0.60W						1.300	1.00	1.00	1.00	1.00	1.00			1053.00	0.00	0.00	162.00
	Length = 9.50 ft	1	0.482	0.137	1.60	1.300	1.00	1.00	1.00	1.00	1.00	0.57	902.20	1872.00	0.22	39.40	288.00
+0.450W						1.300	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
	Length = 9.50 ft	1	0.361	0.103	1.60	1.300	1.00	1.00	1.00	1.00	1.00	0.43	676.65	1872.00	0.16	29.55	288.00

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
W Only	1	0.4653	4.785		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXIMUM	0.399	0.399